WHAT IS CLAIMED IS:

1. A backlight inverter for an LCD panel which drives transformers in pairs, comprising:

5 a switch for switching a direct current (DC) operating voltage in response to a pulse width modulation (PWM) drive signal;

a rectifier for rectifying an output voltage from said switch;

10 a transformer driver for converting an output voltage from said rectifier into an alternating current (AC) voltage;

transformer means for boosting an output AC voltage from said transformer driver to levels of a lamp operating voltage and a complementary lamp operating voltage, said transformer

15 means including a plurality of transformers connected in parallel to said transformer driver and driven in pairs;

lamp means including a plurality of lamps, each of said lamps being operated by a corresponding one of said transformers of said transformer means;

20 operation stop control means for detecting a voltage at a midpoint of secondary windings of each of said transformer pairs in said transformer means, determining from the detected voltage whether a fault exists in said transformer means and outputting an operation stop signal upon determining that the

25 fault exists in said transformer means; and

an output driver for supplying said PWM drive signal to said switch in normal operation and a switch-off signal to said switch upon receiving said operation stop signal from said operation stop control means, respectively.

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2. The backlight inverter as set forth in claim 1, further comprising:

a reference signal generator for generating a sawtooth-wave reference signal based on said output voltage from said

10   rectifier and a DC input voltage;

an over-voltage detector for detecting said output voltage from said rectifier;

a lamp voltage detector for detecting a voltage corresponding to current flowing through each of said lamps of

15   said lamp means;

a voltage selector for selecting a higher one of the voltage detected by said over-voltage detector and the voltage detected by said lamp voltage detector;

comparison means including a first comparator for

20   comparing the voltage selected by said voltage selector with an internal reference voltage for over-voltage determination and providing a signal indicative of whether an over-voltage has been generated, in accordance with the compared result, and a second comparator for comparing an output signal from said

25   first comparator with said sawtooth-wave reference signal from

said reference signal generator and providing a duty cycle
adjustment signal based on the generation of the over-voltage
in accordance with the compared result; and

a logical operation unit for ORing an inverted version of
5   said duty cycle adjustment signal from said comparison means
and said operation stop signal from said operation stop control
means and providing the ORed result to said output driver.

3.   The backlight inverter as set forth in claim 2,
10   further comprising a dimming controller for generating a PWM
signal in response to a dimming signal based on a brightness
control and supplying the generated PWM signal to an output
terminal of said first comparator.

15   4.   The backlight inverter as set forth in claim 1,
wherein said operation stop control means includes:

a transformer fault detector for detecting said voltage
at said midpoint of said secondary windings of each of said
transformer pairs in said transformer means and providing a
20   transformer fault signal if the detected voltage is above a
reference voltage for determination of the fault in said
transformer means; and

a latch set in response to said transformer fault signal
from said transformer fault detector for holding the output of
25   said operation stop signal to said logical operation unit

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until it is reset.

     5. A backlight inverter for an LCD panel which drives transformers in pairs, comprising:

5   a switch for switching a DC operating voltage in response to a PWM drive signal;

     a rectifier for rectifying an output voltage from said switch;

     a transformer driver for converting an output voltage

10   from said rectifier into an AC voltage;

     transformer means for boosting an output AC voltage from said transformer driver to levels of a lamp operating voltage and a complementary lamp operating voltage, said transformer means including a plurality of transformers connected in

15   parallel to said transformer driver and driven in pairs;

     lamp means including a plurality of lamps, each of said lamps being operated by a corresponding one of said transformers of said transformer means;

     operation stop control means for detecting a voltage

20   corresponding to current flowing through each of said lamps of said lamp means, determining from the detected voltage whether an open-lamp condition has occurred, detecting a voltage at a midpoint of secondary windings of each of said transformer pairs in said transformer means, determining from the detected

25   voltage whether a fault exists in said transformer means and

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outputting an operation stop signal upon determining that the open-lamp condition has occurred or that the fault exists in said transformer means; and

an output driver for supplying said PWM drive signal to said switch in normal operation and a switch-off signal to said switch upon receiving said operation stop signal from said operation stop control means, respectively.

6. The backlight inverter as set forth in claim 5, further comprising:

a reference signal generator for generating a sawtooth-wave reference signal based on said output voltage from said rectifier and a DC input voltage;

an over-voltage detector for detecting said output voltage from said rectifier;

a lamp voltage detector for detecting a voltage corresponding to current flowing through each of said lamps of said lamp means;

a voltage selector for selecting a higher one of the voltage detected by said over-voltage detector and the voltage detected by said lamp voltage detector;

comparison means including a first comparator for comparing the voltage selected by said voltage selector with an internal reference voltage for over-voltage determination and providing a signal indicative of whether an over-voltage has

been generated, in accordance with the compared result, and a second comparator for comparing an output signal from said first comparator with said sawtooth-wave reference signal from said reference signal generator and providing a duty cycle

5   adjustment signal based on the generation of the over-voltage in accordance with the compared result; and

a logical operation unit for ORing an inverted version of said duty cycle adjustment signal from said comparison means and said operation stop signal from said operation stop control

10   means and providing the ORed result to said output driver.

7. The backlight inverter as set forth in claim 6, further comprising a dimming controller for generating a PWM signal in response to a dimming signal based on a brightness

15   control and supplying the generated PWM signal to an output terminal of said first comparator.

8. The backlight inverter as set forth in claim 5, wherein said operation stop control means includes:

20   an open-lamp condition detector for detecting said voltage corresponding to said current flowing through each of said lamps of said lamp means, determining that the open-lamp condition has occurred if the detected voltage is below a reference voltage for determination of the open-lamp condition,

25   and then providing an open-lamp condition signal;

a transformer fault detector for detecting said voltage at said midpoint of said secondary windings of each of said transformer pairs in said transformer means and providing a transformer fault signal if the detected voltage is above a reference voltage for determination of the fault in said transformer means;

a malfunction detector for generating a malfunction signal in response to said open-lamp condition signal from said open-lamp condition detector or said transformer fault signal from said transformer fault detector; and

a latch set in response to said malfunction signal from said malfunction detector for holding the output of said operation stop signal to said logical operation unit until it is reset.